

WKS

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)
HAWAIIAN ELECTRIC)
for approval to commit funds in)
excess of \$500,000 for Item Y48500,)
East Oahu Transmission Project.)
_____)

PUC Docket 03-0417

PUBLIC UTILITIES
COMMISSION

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LIFE OF THE LAND'S
OPENING BRIEF
&
CERTIFICATE OF SERVICE

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INTRODUCTION

Life of the Land is Hawai'i's own local environmental and community action group. Our mission is to preserve and protect the life of the land through sustainable land use and energy policies and to promote open government through research, education, advocacy, and litigation. Because energy is the cornerstone of sustainability, Life of the Land has taken a leadership role in advocating for clean and renewable energy generated from Hawai'i's many indigenous resources.

The issue on the table is whether the Public Utilities Commission ("Commission") should approve, modify, or reject Hawaiian Electric Company's ("HECO") proposed East Oahu Transmission Project ("EOTP").

The commission must pre-approve any new project which costs more than \$0.5M or changes to an existing facility of more than 10 per cent.¹ The specific legal requirement is found in the Commission's General Order No. 7, section 2.3(g)(2) which requires that the proposal be "necessary or useful for public utility purposes",² and that the proposal

¹ "Capital improvements >\$500,000.00 or 10% plant in service (whichever less) must be pre-approved by Commission. General Order No. 7, paragraph 2.3.g.2." (Background on Regulatory Utility: Integrated Resource Planning Advisory Group Orientation. Carlito P. Caliboso. Chairman, Hawaii PUC. October 3, 2003).

² "Proposed capital expenditures for any single project related to plant replacement, expansion or modernization, in excess of \$500,000 or 10 per cent of the total plant in service, whichever is less, shall be submitted to the Commission for review at least 60 days prior to the commencement of construction or commitment for expenditure, whichever is earlier. If the Commission determines, after hearing on the matter, that any portion of the proposed project provides facilities which are unnecessary or are

does not support "facilities which are unnecessary or are unreasonable in excess of the probable future requirements for utility purposes." The Statement of Issues in this docket include whether the "proposed expenditures ... will provide facilities which are reasonably required to meet HECO's present or future requirements for utility purposes" and whether the proposal "is preferable to other feasible non-transmission options".³ In issuing a decision, the Commission traditionally uses the term "reasonable and in the public interest".⁴

unreasonably in excess of the probable future requirements for utility purposes, then the utility shall not include such portion of its project in its rate base. If the utility subsequently convinces the Commission that the property in question has become necessary or useful for public utility purposes, it may be included in the rate base." Standards for Electric Utility Service. General Order 7. Rule 2.3(g)2 Data to be filed with the Commission. Effective Date: February 18, 1968." "Electric plant" includes all real estate, fixtures and property owned, controlled, operated or managed in connection with or to facilitate the production, generation, transmission, delivery or furnishing of electricity for light, heat or power." Standards for Electric Utility Service. General Order 7. Rule 1.3g Definitions. Effective Date: February 18, 1968.

³ "Statement of the Issues. The issues in this case are: 1. Whether HECO's proposed expenditures ... will provide facilities which are reasonably required to meet HECO's present or future requirements for utility purposes? ... 4. Whether HECO's East Oahu Transmission Project is preferable to other feasible non-transmission options? ..." Order No. 20968. Exhibit 1: Stipulated Prehearing Order, pages 3-4. May 10, 2004. Docket 03-0417.

⁴ "We conclude, upon review of HECO's request to commit \$609,900 for the project, that HECO's proposal as described in its application is **reasonable and in the public interest**. Accordingly, the proposed expenditure should be approved. ... THE COMMISSION ORDERS: 1. HECO's application for approval to commit \$609,900 to relocate the Waiupe no. 1 line is approved." Decision and Order No. 11448. **January 24, 1992**. Docket 7113. page 3

"Upon review of HECO's application ... we conclude that the request ... appears **reasonable and in the public interest**. ... THE COMMISSION ORDERS: 1. HECO's application to commit \$38,035,100 for Item BT-476 for the installation of the Kewalo to Kamoku 138 kV transmission line is granted. for Item BT-301, is approved." Decision and Order No. 12627. **September 24, 1993**. Docket No. 7602. pages 5-6

"We, thus, determine that HECO's application is **reasonable and in the public interest**, and conclude that the application should be granted in its entirety. ... THE COMMISSION ORDERS: 1. HECO's request to commit \$29,921,900 for Item BT-849, the construction of Waiuu-CIP part 2 overhead transmission lines from the Ewa Nui substation to the Waiuu power plant, is approved." Decision and Order No. 13201. **April 7, 1994**. Docket No. 7256. page 40

"The commission finds that the project is **reasonable and in the public interest**. Accordingly, HECO's application should be approved. ... THE COMMISSION ORDERS: 1. HECO's request to commit \$901,986 for Item 04-6808, the Kahe-Halawa #2/Waiuu-Wahiawa Structure modification project, is

HECO's proposal may be necessary or useful to HECO assuming that we continue the fossil fuel paradigm until (1) every drop of oil is used up; (2) the price of oil becomes prohibitively expensive; and/ or (3) climatic disruptions caused by global warming overwhelm the planet. But this paradigm is not reasonable nor is it in the public interest. Luckily, there is a non-transmission alternative which is feasible and preferable to HECO's current proposal. This alternative is decentralized, distributed and on-site generation utilizing renewable energy and combined heat and power generators.

The voters in this state amended the state constitution in 1978 to call for energy self-sufficiency. How can it be reasonable and in the public interest to ignore the public, the Hawai'i State Constitution, and our State Plans, to continue down this foolish road of foreign-dependence? The EOTP may be reasonable from the utility's perspective, since their generators use only imported fossil fuel, but it is not reasonable or in the public interest.

approved." Decision and Order No. 15312. **January 14, 1997**. Docket 96-0400. pages 2-3

"Based on our careful review and consideration, we find that the project is **reasonable and in the public interest**. ... THE COMMISSION ORDERS: 1. HECO's application to commit an estimated \$4,284,019 for Item BT-301, is approved." Decision and Order No. 17761. **May 26, 2000**. Docket No. 99-0355. pages 12, 15

HECO's proposal is weighty only by its poundage. But it is the substance contained within those reams that is the matter at hand. One must wade through their voluminous paperwork to discover that HECO uses faulty assumptions, mischaracterizes the problem, and proposes the wrong solution. The commission should reject HECO's proposal.

Life of the Land's Brief will:

- I. Provide an Overview of HECO's Transmission Infrastructure
- II. Place this Project in its Historical Context
- III. Outline HECO's current self-serving proposal -- The EOTP Docket (03-0417)
- IV. Prove that HECO's Witnesses Are Not Credible
- V. Show that Consumer Advocate's Witness Is Not Credible
- VI. Highlight the Hawai'i Constitutional /Legal Framework
- VII. Review Indigenous Energy Resource Options
- VIII. Conclusion

I. The Transmission Infrastructure

O`ahu has three levels of power delivery: high voltage transmission lines (138-kV); medium voltage subtransmission lines (78-kV); and low voltage distribution lines (4-, 12-kV). HECO built their 138-kV transmission grid from 1958-64. During this time the Kahe Power Plant was built to supplant the power being generated by the Waiau and Honolulu Power Plants. The Northern Corridor ran from Kahe across the Waianae

Mountains, through the central plains, over the Koolau Mountains to Kaneohe, and back across the Koolau Mountains to the Pukele Substation located in the back of Palolo Valley. The Pukele Transmission Substation provides electricity to the Pukele Service Area (Kaimuki, Waikiki, Ala Moana, Makiki, Manoa, Palolo). (See HECO-EX-4 RFEIS; FEA; Application)

The Pukele Substation went on-line in 1966, being powered by two 3-circuit transmission lines: Halawa-Koolau-Pukele and Waiau-Koolau-Pukele. These lines used a frowned-upon method of powering substations -- the so called 3-circuit line (in which three substations are connected to one transmission line). The obvious solution was to sectionalize the two three-circuit lines into four two-circuit lines. The Halawa-Koolau-Pukele transmission line would become the Halawa-Koolau and the Koolau-Pukele transmission lines, while the Waiau-Koolau-Pukele transmission line would become the Waiau-Koolau and Koolau-Pukele transmission lines. Thus a fault on any line would leave the other three operational.

HECO engineers studied the problem in 1986, and recommended sectionalizing the lines.⁵ HECO restudied the problem in 1991 and re-recommended sectionalizing the lines.⁶ Power Technologies recommended sectionalizing the lines in 1993 because "three-terminal circuits should not be used even temporarily."⁷ HECO's upper

⁵ Pukele 138 kV Source Reliability Improvement Study (1986); HECO-R-301 p. 3; HECO T-3; HECO Response to CA-IR-10; 1995 CH2M HILL Alternatives Study (Final EIS, Volume 2: Appendix C1); HECO RT-3, 11:1-2.

⁶ Pukele 138 kV Source Reliability Improvement Study (1991); HECO-R-301 p. 7

⁷ Power Technology Report. p. X-14

management waited until 1994-95 to do anything about the problem, and then used their refusal to do anything to justify the Wa`ahila Ridge line.⁸

During the 1983-91 time period, HECO suffered the only three island-wide blackouts since the 138-kV system was built. Stone & Webster was hired to investigate the 1983 outage. Their recommendations were: build a new Southern Corridor from Kahe to the Pukele Service Area (they did not say the line should go to the Pukele Substation), increase Integrated Vegetative Management techniques (since most outages are caused by unplanned vegetation-transmission line interactions), and use live wire maintenance (allowing a line to remain on while undergoing maintenance so that it can take power in the event of a failure of another line). Live wire maintenance is an old technique, invented before the first world war, and performed on lines exceeding 200-kV during the second world war.

Following the third system-wide blackout, Power Technologies, Inc was hired to investigate. They found that direct contributing factors included the failure of HECO to adopt Stone & Webster's recommendations re Integrated Vegetative Management & Live Wire Maintenance.

The commission issued its long-awaited decision on reliability in 1999 (Decision and Order No. 17099, dated July 10, 1999 re: Docket No.6281: Regarding Recent Major

⁸ Wong, BLNR Tr. p. 90, lines 3-5

Power Outage)

The commission initially opened this docket on September 23, 1988 ... to investigate the Oahu island-wide power outage that occurred on September 10, 1988. ... Due to the commission's concerns over the adequacy of HECO's preventive actions and the similarities between the 1991 and the 1988 outages, the commission kept this docket open. ... HECO informed the commission by letter that the parties agreed on Power Technologies, Inc. (PTI) as the consultant. ... HECO filed with the commission PTI's report dated August 26, 1993, entitled "Investigation of 1991 Oahu Island-Wide Outage." ... The commission has kept this docket open to monitor the status and extent of HECO's implementation of PTI's recommendations, as well as the effectiveness of HECO's repair and maintenance program, the adequacy of its transmission and other facilities, the competency of its personnel, and the adequacy of its training program. ...

PTI points out, however, that two recommendations cited in the Stone and Webster Report were not effectively and fully implemented. These recommendations were (1) to employ "live-line" maintenance, and (2) to implement a vibrant vegetation management program, with special emphasis on obtaining the required clearance between trees and energized conductors. PTI states that these two recommendations would have greatly reduced the risk of the April 1991 outage. Accordingly, PTI has included both recommendations in its report.

Out of the 109 specific recommendations of PTI, four were identified as deserving immediate attention: ... 4. HECO should increase the number of authorized lineman personnel in the live-line section from 15 to 20, and initiate training to bring the live-line section to full strength as soon as possible. ... As of May 11, 1999, HECO has completed three out of the four priority recommendations. ... HECO reports that PTI's last priority recommendation, regarding live-line work, is 60 per cent completed as of January 21, 1999. ... HECO also points out that it is likely that the reevaluation may find that the need for an increased number of live-line maintenance personnel has diminished with the completion of the Waiau-CIP 138 kV transmission lines, and staffing considerations in other areas

which may be more effective toward improving system reliability."

THE COMMISSION ORDERS: 1. PTI's report on the investigation of the 1991 Oahu Island-Wide Outage, including its findings, conclusions, and recommendations, **is accepted and approved.**

II. Historical Context

For more than 30 years and over vigorous community opposition, Hawaiian Electric Company has tried to string a 138,000 volt power line to the Pukele Substation in the back of verdant and peaceful Palolo Valley. Failing that, HECO switched to an underground subtransmission system (the EOTP) ... but the reasoning remains the same. To fire up HECO's bottom line on the backs of the already overburdened ratepayers.

This struggle is the oldest, longest, and most intense energy issue in state history. In 1973 HECO proposed the **Pukele-Kamoku** 138-kV Transmission Line project. Community objections led to Act 11 (1976) which required a public hearing on overhead high voltage transmission lines in residential communities. HECO changed the proposal from a 2-circuit (Pukele-Kamoku) to a 3-circuit (Halawa-Pukele-Kamoku) 138-kV Transmission Line in 1977. The **Palolo Community Council** wrote a letter to the Governor, the Board of Land and Natural Resources ("BLNR"), and the PUC, dated June 20, 1979: "Enclosed please find the **petition of 3578 Palolo Valley residents** and homeowners who are opposed to Hawaiian Electric Company's plans to place two 138 KV electric transmission lines in Palolo Valley." In 1979 several **Palolo community**

groups and residents sued to block the line. (Palolo Community Council v. BLNR. Civil Number 57887) "In 1980, Hawaiian Electric made a settlement agreement with the Palolo communities setting up what we call 138 kV overhead exclusion zones." (Kerstan Wong. Palolo Neighborhood Board. August 27, 1997). HECO's 1985 Form #1 filed with the United States Federal Energy Regulatory Commission ("FERC") stated that the **Pukele-Kamoku** accounting file was an abandoned capital project. (FEA: LOL Comments)

HECO proposed the Kamoku-Pukele 138-kV Transmission Line proposal in 1991. The line would be built from the Pukele Transmission Substation at the end of the Northern Corridor to the Kamoku Transmission Substation at the end of the Southern Corridor. Both substations are in the Pukele Substation Transmission Service Area. The proposed routing would include conservation land on Wa`ahila Ridge, mauka of the Saint Louis Heights community. Use of the conservation land required HECO to file a Conservation District Use Application ("CDUA") with the Department of Land and Natural Resources ("DLNR").

For decades the community has been trying to determine just what the need for the line was as HECO did its 'bob and weave' moves. "It's for the Convention Center," they said. "No, it's really for East Honolulu," "No, it's the ring of reliability," "The Honolulu City Line is to charge up our economy."

The community knows that the real purpose for this project is to charge up HECO's

bottom line and further gouge their huge customer base with higher rates for a project that is not needed.

HECO's Wa`ahila Ridge Arguments

The arguments behind HECO's proposal were weak at best. The Pukele Transmission Substation went on-line in 1966, powered by two 3-circuit transmission lines. The Koolau Substation was powered by these two lines plus a third 2-circuit line. The Halawa-Koolau-Pukele line was "quite reliable," while the Waiau-Koolau-Pukele line was less reliable, due to faults on the Waiau side of the circuit. Sectionalizing the line would mean that if the Waiau-Koolau segment failed, there would still be two good lines to each of Koolau and Pukele. HECO Engineers (1986) recommended sectionalizing the 3-circuit lines to decrease outages, however HECO delayed fixing the problem until 1994-95, using this known system weakness to justify building the Wa`ahila Ridge line.⁹

Following the 1991 system-wide outage Power Technologies ("PTI") recommended the use of Live Wire Maintenance. The commission **"accepted and approved"** the PTI Report (D&O 17099, 1999). The use of live wire maintenance counters the need for a new backup line. So HECO argued then, and continues to argue, that Live Wire Maintenance simply won't work.

⁹ Pukele 138 kV Source Reliability Improvement Study (1986); HECO T-3; HECO Response to CA-IR-10; 1995 CH2M HILL Alternatives Study (Final EIS, Volume 2: Appendix C1); HECO RT-3, 11:1-2

HECO also argued that people were satisfied with lower reliability prior 1991, but following HECO's 1991 decision to build this new line, they said that people now want more reliability. No proof for this statement by HECO.

HECO argues that they had a duty to provide reliable service. But a corporation is said to operate primarily for the benefit of shareholders (Michigan Supreme Court: *Dodge v. Ford Motor Co*, 204 Mich. 459, 170 N.W. 668 (1919); American Law Institute (ALI) *Principles of Corporate Government*). Building a transmission line would increase their bottom line, and please their shareholders, but would do so on the backs of their ratepayers.

Finally, HECO refused to seriously look at alternatives, including but not limited to distributed generation, energy efficiency and load management. These alternative were suggested by numerous entities.

Wa`ahila Ridge Administrative Actions

HECO wrote two Draft and Final Environmental Impact Statements ("EIS"). The first Final EIS was rejected on both substantive and procedural grounds. HECO wrote a Revised Draft and Revised Final EIS. The Revised Final EIS was accepted by DLNR. It consisted of 26 volumes (one volume for the application, two volumes for appendixes,

and 23 volumes for replying to the 780 letters and 6,700 postcards in opposition to the project. The opposition was widespread, and included environmental, cultural, political, business, community and governmental organizations and 2 political parties.

The Board of Land and Natural Resources ("BLNR") placed the item on their agenda. Motions for a contested case hearing were filed. The BLNR accepted four parties into a contested case hearing, HECO, Malama O Manoa, The Outdoor Circle, and Life of the Land and appointed Retired Judge E. John McConnell as the hearing officer. The Consumer Advocate, although authorized under state law to intervene in administrative actions involving utility projects (**HRS §269-54(b)7**), chose not to participate. A contested case hearing took place in November 2001.

BLNR Contested Case Hearing re Wa`ahila Ridge

HECO presented numerous witnesses, but only three discussed their case in main: Chris Shirai (HECO's Vice President of Energy Delivery and Executive Sponsor); Paul Luersen (Manager, Vice President and Environmental Planner of CH2M Hill's Honolulu office; responsible for the overall preparation of the EIS); and Kerstan Wong (HECO's Kamoku-Pukele Transmission Line Project Manager: 1993-2001)

Mr. Shirai gave the project overview, but left the technical questions for HECO's other experts. Mr. Shirai suggested leaving conservation district questions to Paul Luersen (BLNR Contested Case Hearing Transcript ("BLNR Tr.") 1159:21-1160:2), renewable

energy questions to HECO Surrebuttal Witness Art Seki (BLNR Tr. 1135: 9-16), cogeneration questions to HECO Surrebuttal Witness Ken Fong (BLNR Tr. 1128-22-23; See also: BLNR Tr. 1130:11) and state energy plan questions to Mr. Gary Hashiro. (BLNR Tr. 1145:8-12) HECO Surrebuttal Witnesses Mr. Art Seki and Mr. Ken Fong were withdrawn by HECO before they could testify and Gary Hashiro was not scheduled to be called as a HECO witness.

Mr. Luersen offered Direct Testimony, and Rebuttal Testimony focusing on reliability, cost and engineering. Under cross-examination, Mr. Luersen stated that he copied a large portion of his Direct Testimony from the EIS. He testified as an Expert Witness on things he said he has no expertise in. For this testimony he was paid \$40,000. (BLNR Tr. 280:20-21) He is not an engineer, is not an expert on generation, is not an expert on load or reliability, and has only minimal knowledge about state energy policy. ("I am not an expert on distributed generation or generation in general, so I can't answer engineering type questions." (BLNR Tr. 295:11-13) "Q. Does your area of expertise include load management? A. No. Q. Does your area of expertise include reliability? A. No." (BLNR Tr. 290:24-291:4) "Q. Are you familiar with Article 11, section 1 of the Hawai'i State Constitution? A. No, I don't know what that says. Q. Are you familiar with DBEDT's Hawai'i Energy Strategy 2000? A. I looked at it last year, but it is very superficial knowledge." (BLNR Tr. 291:5-11) "Q. Are you familiar with the Hawai'i State Plan? A. Only in general terms. Q. Are you familiar with the state energy plan? A. Again, only in general terms." (BLNR Tr. 291:16-19) "Q. Did you write any part of your testimony or is it all copied from the EIS or gotten from others? A. A good part of it is

from the EIS" (BLNR Tr. 295:20-22)

Kerstan Wong was HECO's Kamoku-Pukele Transmission Line Project Manager: 1993-2001. He was one of two HECO engineers assigned to the HECO created Community Advisory Committee (CAC) which met eleven (11) times in 1993 to discuss the route selection process and seven (7) times between June 1994 and February 1995 to discuss alternatives. Mr. Wong appeared before numerous Neighborhood Boards to discuss HECO's proposal. At the contested case hearing, Kerstan Wong focused on the nuts and bolts, but not on the big picture: **"I am not qualified to give an opinion on what is practicable or viable,"** (BLNR Tr. 124:21-23) Wong testified, **"my job is to put in a transmission line between Kamoku and Pukele substation"** (BLNR Tr. 154:4-5).

Judge E. John McConnell issued his Proposed Finding of Facts ("FOF"), Conclusions of Law ("COL"), and Decision and Order ("D&O") against the proposed project on January 12, 2002. The proposed decision had 282 Findings of Fact and 39 Conclusions of Law. (LOL-Ref-18)

The BLNR rejected HECO's CDUA on June 28, 2002. The final decision had 263 Findings of Fact and 29 Conclusions of Law. The BLNR decision, in part, noted "Public purpose uses of lands in the conservation district obviously have been and may be permitted where the circumstances and legal criteria have been met." (COL 12) "It is not correct, however, to conclude that every project, which benefits the public to any

degree, should be approved." (COL 13) "HECO asserts that the PUC has exclusive jurisdiction to determine the issue of "need" for the project under HAW. REV. STAT. chapter 269. However, HECO's reliance on the contention that therefore the Board lacks jurisdiction to determine "need" is misplaced. Of primary concern to the Board are the conservation values that are impacted, the degree to which such impacts can be mitigated, as well as what other viable alternatives may be pursued that further mitigate or avoid impacts to these conservation values." (COL 14) "HECO has not met its burden of proving by a preponderance of the Evidence that its project is consistent with the statutory criteria of HAW. REV. STAT. Chapters 205 and 183C and the administrative rules, HAW. ADMIN. RULES chapter 13-5." (COL 28) "This project has significant impacts which cannot be sufficiently mitigated." (COL 29) (LOL-Ref-19)

HECO is now proposing the East Oahu Transmission Project ("EOTP") and has embedded the cost of their failed Wa'ahila Ridge fiasco into the EOTP costs. (HECO RT-12, pages 1-4; "Mr. Alm, in HECO RT-12, also discusses why the prior planning costs were prudently incurred, and why the costs are included as part of the costs for the East Oahu Transmission Project." HECO RT-1 p 19:2-4)

Media Reaction

Editorial: HECO plans must address need, wants: "It may be that some of the skeptics got to that point in their thinking primarily because they opposed Wa'ahila. They wanted something to argue against the ridgeline proposal, and if that argument was the lack of need for a new line, they would use it. But others became genuinely convinced that there was no compelling need to boost reliability of service in that area; or that, if indeed there was a need, there were other ways to meet it. In short, the fierce

community opposition to the ridge proposal did serious damage to the underlying 'need' argument. So, as Hawaiian Electric moves forward, it must face squarely the fact that many have concluded there is no need for this project at all. That is, technology and time may have presented us with other options to what is by now a mature power distribution system. **Honolulu Advertiser. Thursday, May 15, 2003.**
(<http://the.honoluluadvertiser.com/article/2003/May/15/op/op01a.html>)

Editorial: Meetings will shed light on HECO plans. "But it appears that HECO has skipped a step in the process -- that is, to demonstrate the need for the backup system, one of the issues that led to the state's rejection of the Waahila plan. ... HECO contends the transmission lines are necessary for dependable service to the island's urban core as well as to Windward Oahu from the North Shore to Makapuu. This conflicts with a report from a state-appointed hearings officer, retired Judge E. John McConnell, that 'the public benefit or public need for this project has been substantially overstated by HECO.'" **Honolulu Star-Bulletin. Friday, May 16, 2003**
(starbulletin.com/2003/05/16/editorial/editorials.html)

III. The EOTP Docket (Application & Environmental Assessment)

According to HECO, the alleged purpose of the Proposed Action is to address four problems relating to the 138kV transmission system in the East O`ahu area: (1) Pukele Substation Reliability Concern, (2) Ko`olau/Pukele Overload Situation, (3) Downtown Substation Reliability Concern, and (4) Downtown Overload Situation. (FEA, ES-2).

The Downtown problems are manufactured. They add an unnecessary layer of complexity to HECO's problem. The alleged Downtown Overload Situation "involves ***potential*** transmission line overloads in HECO's Southern 138kV Transmission Corridor ***starting after 2024.***" (FEA, page 1-2) The Downtown Substation Reliability Concern involves the potential failure of new and greatly underutilized transmission lines. "The concerns regarding the reliability of the three downtown substations are not as critical as the concerns regarding the Koolau-Pukele line overhead and the Pukele

Substation reliability." (HECO Application, p 21:3-5)

The Pukele load issue is a red herring. The Kamoku Substation can easily handle all anticipated new loads for the foreseeable future. Koolau/Pukele Overload

Situation "This involves potential transmission line overloads in HECO's Northern 138kV Transmission Corridor starting in 2005." (FEA, page 1-2) The solution is, and has been planned to be, absorption of new load demand by the Southern Corridor.

The real issue is, and has always been, reliability at Pukele. Koolau/Pukele Reliability Concern. "This involves the reliability of the Pukele Substation located at the end of HECO's Northern 138kV Transmission Corridor." (FEA, page 1-2).

PUC DN 03-0417: Contested Case Proceedings

The commission accepted HECO, the Consumer Advocate, Life of the Land, and a group of Legislators to become parties in the EOTP Docket. The Legislators have not participated in the proceedings, nor explained their absence. HECO, the Consumer Advocate, and Life of the Land each participated in preparing the "Stipulated Prehearing Order", drafting the "Issues", setting the docket timelines, etc. The commission approved each aspect of the docket. Each party filed Testimony, "Information Requests", Responses to Information Requests, etc. The Commission's Evidentiary Hearing was held on November 7-8, 2005.

Just before the Evidentiary Hearing started, the Consumer Advocate reversed its position on some points of contention with the utility. The embedded cost issue would be postponed to a future docket, and most other disagreements between the utility were subsequently agreed to by the Consumer Advocate. Thus the Consumer Advocate showed itself once again to be the utility advocate.

IV. Contested Case Hearing -- HECO's Witnesses are not Credible

HECO presented numerous witnesses, but only three discussed their case in main: Thomas L. Joaquin (HECO's Senior Vice President); Shari Y. Ishikawa (HECO's Principal Transmission Planning Engineer); and Kerstan J. Wong (HECO's Project Manager 1993-2004)

Thomas L. Joaquin is HECO's Senior Vice President for Operations and HECO's Policy witness, except for Regulatory Policy matters, in this proceeding. Mr. Joaquin presented the project overview, focusing on the policy perspective and the selection process. "The scope of work is described in detail in the Application for the East Oahu Transmission Project and by Mr. Wong in HECO T-2, and by Ms. Ishikawa in HECO T-4." (T-1, page 2:14-16)

Shari Y. Ishikawa was the Principal Transmission Planning Engineer in the Transmission Planning Division in the Power Supply Department and was promoted

during EOTP to be the Director of the New Dispatch Office Project in the Special Projects Department. From a transmission engineering perspective Ms. Ishikawa discussed the load/reliability issues and transmission solutions. "Ms. Ishikawa is our transmission planning witness on the need for the project." (Joaquin, Tr. 12:12-13) Her background, education, training, expertise and credibility is in transmission. Since the optimal solution lays outside of the transmission paradigm, her testimony was interesting but irrelevant. Ms Ishikawa's direct testimony is designated HECO T-4.

Ms. Ishikawa used scare tactics to promote the need for the new lines by raising the threat of power outages at Civil Defense and National Guard facilities.

"A blackout that incapacitates the Hawaii National Guard and Civil Defense facilities at Diamond Head could have a serious effect on Hawaii's safety and security." (HECO T-4. 39:9-11)

But HECO did not consult with the Oahu Civil Defense Agency regarding this threat.

There are no records of any correspondence over the past 10 years between HECO and the Oahu Civil Defense Agency with respect to upgrading transmission, subtransmission lines and substations within the Pukele Service Area. (HECO Response re LOL-HECO-IR-73)

It would be the responsibility of the Hawaii State Civil Defense to determine if back up generators are required to provide reliable service for its operations. (HECO Response re LOL-HECO-IR-71d)

Ms. Ishikawa seeks to use scare tactics to justify an additional electric line to the Hawai'i National Guard and Civil Defense facilities. These facilities may need additional

reliability upgrades, but transmission line upgrades is not the primary or secondary way of achieving increased reliability. HECO has not evaluated the other ways of upgrading these facilities. Instead HECO seems to be using this scare tactic to justify the line in the absence of a real alternatives analysis.

Hawai'i Civil Defense and National Guard must safeguard their electrical systems against Acts of God, distribution line failures, and transmission line failures. No matter how unlikely an Act of God is, they must be able to operate under these conditions.

Civil Defense and National Guard units are needed during times of extreme stress - tsunamis, hurricanes, earthquakes, and other Acts of God. It is during these times that the entire electric grid may be off-line. It is imperative that Civil Defense and National Guard have backup generators so they are able to meet their obligations to serve the public during trying times.

The most likely explanation for loss of service from the electrical grid is failure of the distribution system. Most of the outages occur on the distribution system. The Hawai'i Civil Defense facility experienced 9 outages in the past 13 years, 8 attributed to distribution substations¹⁰. Parts of Waikiki experienced 9 outages in the past 13 years,

¹⁰ "Eight outages affecting the Civil Defense were caused by distribution line outages over the past 13 years." (HECO Response to LOL-HECO-IR-74b1) "for Civil Defense, there were no outages over the past 13 years caused by an outage of the sub-transmission lines." (HECO Response to LOL-HECO-IR-74b3) "Civil Defense experienced an outage caused by the loss of the two 138kV transmission lines feeding the Pukele Substation. " (HECO Response to LOL-HECO-IR-74b5)

7 attributed to distribution substations.¹¹ Building additional transmission and subtransmission lines will not substantially decrease the number of outages, since most outages are on the distribution side. Therefore the facilities interested in having increased reliability must have back-up generators.

"Networks are more reliable since the failure of one component in the network will normally not result in an interruption to the customers connected to the network."
(HECO Response to LOL-SOP-IR-57a) "The only distribution network system in the State is located in the Downtown Honolulu area." (HECO Response to LOL-SOP-IR-57b) HECO could upgrade the distribution system to build in further layers of redundancy to protect the Hawai'i Civil Defense and National Guard units as well as Waikiki, but has chosen not to.

Outages can also occur due to transmission line failures. It is important to provide sufficient transmission line capabilities while recognizing that these types of outages will always occur. "A recent article in the August 2004 IEEE Spectrum magazine titled *The Unruly Power Grid* discusses the fact that large outages can and will continue to occur despite best efforts of planning engineers." (CA-T-1, 109:16-18) Thus these critical facilities absolutely need on-site backup and emergency generators.

¹¹ "For Waikiki, there were seven outages at the distribution substations over the past 13 years, which affected parts of Waikiki." (HECO Response to LOL-HECO-IR-74b2) "For Waikiki ... there were no outages over the past 13 years caused by an outage of the sub-transmission lines." (HECO Response to LOL-HECO-IR-74b3) "For Waikiki, one outage was caused by the transmission substations" (HECO Response to LOL-HECO-IR-74b4) "Waikiki ... experienced an outage caused by the loss of the two 138kV transmission lines feeding the Pukele Substation." (HECO Response to LOL-HECO-IR-74b5)

HECO notes that the Pukele Service Area includes 5.5 MW of critical loads plus fire/police stations. Of the 5.5 MW of critical load, 2.1 MW is backed up and 3.4 MW is not backed up. (HECO Response to LOL-HECO-IR-71). If these critical loads do not have emergency on-site generators, HECO should work with them to install such systems. Building a \$50M subtransmission line to increase but not eliminate outage possibilities at critical load facilities seems like overkill.

Ms. Ishikawa's analysis also fails a very simple arithmetic calculation. The Pukele Transmission Service Area has a time-varying load of roughly 100-200 MW¹², and 39-52 MW of backup generators, thus the backup load can provide roughly 20-40% of the total power needed. But HECO alleges that this 20-40% of the load can provide power for only a few lights and elevators. It contravenes their assertion that 2.5 - 5.0 times this small amount provide peak power for the entire service area.

"The March 2000 DG study estimated that approximately 39 to

¹² The Pukele Daily Peak Load is 192 MW (HECO T-4, page 38:5-6). Typically, the night load is slightly more than half the peak load. "Based on data from January 1, 2004 to October 17, 2004, the maximum evening-time load for the Pukele Service Area was 213 MW. For the year 2003 it was 224 MW." "Based on data from January 1, 2004 to October 17, 2004, the average day-time load for the Pukele Service Area was 168 MW. For the year 2003 it was 167 MW." "Based on data from January 1, 2004 to October 17, 2004, the average night-time load for the Pukele Service Area was 126 MW. For the year 2003 it was 125 MW." "Based on data from January 1, 2004 to October 17, 2004, the minimum night-time load for the Pukele Service Area was 84 MW. For the year 2003 it was 89 MW." (FEA, Volume 1, p 356) "Based on data from January 1, 2004 to October 17, 2004, the average day-time load for the Ko'olau/Pukele Transmission Service Area was 306 MW. For the year 2003 it was 302 MW." "Based on data from January 1, 2004 to October 17, 2004, the average night-time load for the Ko'olau/Pukele Transmission Service Area was 225 MW. For the year 2003 it was 222 MW." "Based on data from January 1, 2004 to October 17, 2004, the minimum night-time load for the Ko'olau/Pukele Transmission Service Area was 154 MW. For the year 2003 it was 151 MW." (FEA, Volume 1, p 353) "In 1998, the average daily peak load carried by the HECO transmission system was 1021 MW." "In 1998, the Heco transmission system carried an average of 832 MW." "In 1998, the average daily minimum load carried by the HECO transmission system was 541 MW." "The average difference between the hourly minimum and maximum daily peaks in 1998 was 480 mw." (RFEIS Volume 11, Response to LOL Questions # 375, 376, 377, 381)

52 MW of emergency generation exists, based on discussion with diesel generator vendors that supply the emergency generators." (HECO T-4. 69:12-14)

"Some customers with emergency generators on site may be able to meet limited power needs during an area blackout. However, typical emergency generators (at a hotel, for example) serve only critical loads such as elevators and emergency lighting. Ultimately the vast majority of customers within the Pukele service area, including most of Waikiki, would be without power until at least one of the two 138kV lines to the Pukele Substation was restored to service." (HECO T-4. 38:15-20)

Even though all existing photovoltaic systems in the state are on roof tops, Ms. Ishikawa continues the naive assertion that new solar would need to be installed on undeveloped parcels. "Large-scale solar production of energy within East Oahu would require 450 to 700 acres of land per 100 MW plant, which would severely impact vegetation on the island" (HECO T-4. 67:20-22)

Ms. Ishikawa testified:

"As explained in the March 2000 DG Alternatives study, PV requires an extensive land area to achieve the capacity required for the Koolau/Pukele transmission line overload problem. Photovoltaic is not available 24 hours a day, so reliable power would be an issue. Wind power faces the same land and wind availability problems and wind resources are not available in the area except for some areas in the Windward Area. Additional transmission facilities would be required to transport the energy from the wind resource to the Koolau/Pukele area. **Costs for renewable resources were not evaluated** because of the practical issues involved in implementing renewable options in the Koolau/Pukele area." (HECO T-4. 85:7-16)

"In general, the 1995 Alternatives Study, as updated in 2000,

found that renewable resource generating plants are not a viable alternative due to the lack of suitable sites, the large land requirements, the non-firm nature of wind and solar resources, and the cost and need for interconnection lines if suitable sites could be found and battery energy storage systems were added to firm up the resources. The costs considered for the renewable resource generating plants were capital costs in the 1995 Alternatives Study and 2000 update. It was concluded that a life cycle cost analysis was unnecessary because there were other significant factors that made this alternative non-viable. These other factors, as noted on page 32 of the Application, included the lack of suitable sites, the large land requirements, the non-firm nature of wind and solar resources, and the need for interconnection lines if suitable sites could be found and battery energy storage systems to firm up resources." (HECO Response to LOL-HECO-IR-7a)

This argument fails the common sense test:

(1) The allegations of the lack of suitable sites and the large land requirements is not credible. (a) HECO notes that "200 MW would require 1,200 to 1,400 acres [of photovoltaic panels], which ... is also equivalent to approximately 1.3% to 1.5% of land in the Koolau/Pukele service area that is a part of the State Urban District" **(HECO Response to LOL-HECO-IR-80(b)) The 1.3 - 1.5% is the high-end estimate, since part of the load already has backup generators, and another part can be shifted to the Southern Corridor. But assuming that all 200 MW needs photovoltaic backups, 1.5% is equivalent to placing 25 feet by 25 feet of photovoltaic panels per acre of urban land;** (b) "No study has been conducted as to the PV MW potential of rooftops in the Pukele Service Area." **(HECO Response to LOL-HECO-IR-35) Even without a study, it is intuitively obvious that existing roof-space exceeds 1.5% of the urban area within the Koolau/Pukele Service Area;** (c) Combined Heat and

Power systems are built in and/or located in existing buildings. "The 39 MW estimate was not updated for this project because ... DG installations in the Koolau/Pukele area ... will have potential air and noise permit problems due to their close proximity to residential areas." (HECO Response to LOL-HECO-IR-83c).

(2) The cost estimates are inflated. "The 39 MW of back-up generators the question refers to was HECO's estimate of how much emergency generation capacity existed in the Pukele Substation Service Area in 2000. These generators were not purchased or installed by HECO and thus, there was no cost to ratepayers." (HECO Response to LOL-HECO-IR-83a)

(3) Transmission lines are not needed from basements and rooftops systems to the local grid.

(4) Individual wind and solar resources are non-firm resources. Individually, a given system may not be firm. Employing many systems and a network of diverse types of systems at many different locations removes the intermittent power of a single system. Micro and nano technology will bring smaller and smaller generators onto the market, further eliminating the need for centralized power.

Kerstan J. Wong was Project Manager for the Kamoku-Pukele Transmission Line Project (1993-2002), Project Manager for the EOTP (2003-2004) and is now Director of

the Project Management Division (2004-). As Project Manager, Kerstan Wong followed orders and did no analysis of his own, as his testimony revealed (in the Wa`ahila Ridge contested case hearing). He has been at the center of the controversy for over a decade, but on the witness stand he continually passed the buck, (to) denied knowledge of things, and was evasive, if he answered at all.

Mr. Wong is not familiar with the project specifics:

"I am not qualified to give an opinion on what is practicable or viable," (Wong. KBLNR Tr. 124:21-23) Wong testified, "my job is to put in a transmission line between Kamoku and Pukele substation" (Wong. BLNR Tr. 154:4-5).

"Q. So your statement that you made in the contested case hearing before the BLNR when you said you don't know what is viable or feasible, your job is simply to put in a line, put in a transmission line between two substations, that still holds?

A. As I mentioned, I'm the project manager, and there are engineers that can attest to the technical intricacies of different proposals and alternatives.

Q. But you're not familiar specifically with them yourself?

A. No." (Wong. Tr. 49:16-50:1)

"As project manager, my job is to manage the scope, schedule, and costs of the preferred alternative at the time. I don't know the details." (Wong. Tr. 56:21-23)

Mr. Wong included a discussion of Act 95 in his testimony, which he testified under oath is beyond his scope of knowledge:

"In 1997, however, the State Legislature adopted Act 95, which amended HRS Section 269-27.6. Act 95 requires the PUC to consider, among others, the following key factors ... Actions taken by HECO to address the Act 95 factors are described in

HECO T-2, pages 22-24." (Wong RT-2)

"No, I'm not familiar with Act 95." (58:3) "Again, I put in these different types of information as the project manager to provide background. As far as the intimate details of what these different acts -- for example, Act 95 and how its applied, I'm not familiar with the exact details." (Wong Tr. 58:24-59:3)

The BLNR must decide whether a project is a public benefit, while the commission must decide if it is needed. Mr. Wong stated in his direct testimony that the Hearing Officer exceed his statutory authority. But under oath Mr. Wong lacked the understanding of this difference between the BLNR and commission standards:

"A. HECO took exception to the Hearing Officer's recommendation based on the following main points: 1) The Hearing Officer exceeded his statutory authority and jurisdiction in determining whether the project was needed ... 4) The Hearing Officer erroneously determined that practicable alternatives exist to the project.

Q. Should HECO have expected the Hearing Officer to decide on the CDUP based on project need?

A. No. HECO should not have expected the Hearing Officer to decide on the CDUP based on project need. The Hearing Officer issued a pre-hearing order informing the parties that the contested case hearing was not the Commission, and they were not to turn the hearing into a Commission proceeding or invade the jurisdiction of the Commission." (Wong RT-2)

"Q. And you said that the BLNR standard is public benefit; correct?

A. That's one of the many issues or factors that they need to consider in granting a conservation district use permit.

Q. But you don't know how that differs from need; correct?

A. Yeah, again, I don't know the legalities of the difference between public benefit versus public need.

Q. So as an expert witness, you don't actually know if the hearing officer went beyond his bounds and rules; correct? That's only something you heard from the company; correct?

A. Again, I'm a witness to provide this background on the project. I don't claim to be any expert in legal law." (Wong Tr. 52:23-53:5)

The HECO Application included a letter from Mr. Wong to Mr. Luersen offering a critique of CH2MHill's renewable energy information. But this appears to have gone beyond the scope of expertise of either person:

"Q. In the update, which is HECO Exhibit 4, the transmission line alternative study update, the last two pages of that study is a letter that you wrote to CH2MHill on April 20th, 2000; correct?
A. Yes" (Wong Tr. 33:7-11)

"Q. You talked about land requirements and cost estimates for solar?
A. Yes.
Q. And you talked about the number of acres that would be required for a PV?
A. Yes." (Wong Tr. 33:25-34:5)

"A. Again, Ms. Ishikawa can probably provide the technical details on how do you calculate the amount of area you need to install photovoltaic ...
Q. Okay. So referring back to your April 20th, 2000, letter to Paul Lewerson [sic], project manager of CH2MHill, you said, quote, Based on installations around the world, five to ten acres of land to generate one megawatt appears to be a more realistic land requirement for photovoltaics, unquote; is that correct?
A. Yes, based on the letter at that time, yes, that is correct.
Q. So do you feel comfortable with that statement?
A. I don't understand what you mean, if I feel comfortable with that statement.
Q. You just suggested I should ask another witness this issue, but you wrote to CH2MHill on this issue; correct?
A. Yes. Although I wrote the letter, I then rely on other engineers to provide me with the technical information on these different alternatives that were looked at." (Wong. Tr. 48:11-16)

Mr. Wong lacked an understanding of the renewable alternatives:

"Q. And you discussed distributed generation and retail power?

A. Yes." (Wong. Tr. 34:14-16)

"Q. Are you familiar with CHP units here on Oahu?

A. Not in particular, no." (Wong. Tr. 48:22-23)

"Q. Have you see the sea water air-conditioning proposals for East Oahu?

A. No, I have not." (Wong. Tr. 49:13-15)

" Q. And, again, the Navy's wave project would be something you're not familiar with, then?

A. That's correct, yeah." (Wong. Tr. 50:9-11)

"Q. Or the synthetic natural gas pipelines that exist in Honolulu?

A. No, I wouldn't be familiar with those." (Wong. Tr. 50:15-17)

Andrew Stewart

Andrew Stewart was hired by HECO to analyze Live Working. Andrew Stewart established a Project Team, reviewed recommendations made by Power Technology (PTI), wrote a paper on live working (HECO Application Exhibit 7) and filed Direct Testimony (T-5).

"The Project Team reviewed both PTI's report that summarized findings ... and the November 19, 1993 report that HECO prepared and submitted to the PUC in response to PTI's report. HECO challenged PTI's findings and recommendations on several issues ... the Project Team found many of the recommendations in PTI's report to be fully reasonable, however, the Project Team also believes that HECO appropriately challenged some of PTI's recommendations ..." (Stewart Tr. 29:25-30:12)

Mr. Stewart, in his exhibits and testimony, ignored the Commission's Decision and Order No. 17099, **dated July 10, 1999: "THE COMMISSION ORDERS: 1. PTI's report on the investigation of the 1991 Oahu Island-Wide Outage, including its findings, conclusions, and recommendations, is accepted and approved."**

Mr. Stewart concluded that HECO's 1993 critique of Power Technology (PTI) was reasonable, while totally and completely ignoring the Commission's 1999 ruling overriding HECO's objections. Mr. Stewart failed to show why the commission's decision was not reasonable and why the decision should be overturned.

V. The Consumer Advocate's Witness (Mike Kiser) was less than credible

The Consumer Advocate is by definition the Advocate of the Consumer. However, the Consumer Advocate's position in this docket is not based on what consumers want, because the Consumer Advocate has no process for determining the consumers' opinions. In fact, the Consumer Advocate often appears to be the utility's advocate rather than advocating for the public interest.

"Q. Looking at the planning issues, how does the Consumer Advocate determine what consumers want?

A. It's my understanding planning was going to be deferred from this proceeding.

Q. I wasn't referring to HECO planning, but the Consumer Advocate by title is the advocate of the consumer. So how does the Consumer Advocate determine what the consumer wants in this docket, to the best of your ability?

A. To the best of my ability, you know, the issues in this docket are outlined in Order No. 20968 which, to the best of my ability

and the CA's ability, we responded by addressing these issues.

Q. The CA, though, helped write that with the other parties, didn't they?

A. I'm not -- yes, I think they did." (Kiser Tr. 280:4-20)

Mr. Kiser, in his written testimony, noted strong opposition to the EOTP:

What HECO-101 [Mr. Joaquin sponsored exhibit re Decision Matrix] does not point out is that there is strong opposition to all three alternatives." (CA-T-1, p 110:18-20)

"Page 12 of the 3Point Consulting report called *East Oahu Transmission Project, A Report on Public Input Collected in June and July 2003* (September 2003), which is also page 15 of Exhibit 11 to the Application in this docket, points out three dominant themes;

* **The EOTP is not needed**

* Strong opposition to the 138 kV alternative

* Criticism of the CAC meeting locations

The third item has no impact on project alternatives comparison. The first two dominant themes are relevant and indicate that the project is strongly opposed." (CA-T-1, p 110:21-111:8)

In his oral testimony, Mr. Kiser downplayed the opposition:

"Q. In your testimony you talked about the public welfare and how it would increase reliability, and therefore, it was in the public welfare. In that regard, did you go out and seek to determine what level of reliability different classes of customers wanted?

A. Not independently. I mean it was done in studies and presented in even the Three-Point study that you mentioned, which seemed to be a pretty good -- pretty good segment or slice of the, I guess, economy and people in general. (284:10-20)

Q. Didn't the Three-Point study say that residential customers were satisfied with the existing level of reliability?

A. That may be true. I do not know. I'm not sure of the specific cite.

Q. Would the businesses represented in the Three-Point

analysis, did any of them suggest they wanted the expanded 46kV version?

A. I don't know specifically.

Q. So you have no direct knowledge that either residential or business customers favor the position taken by the Consumer Advocate?

A. Give me just a moment here, and would you rephrase or repeat.

Q. Yes. Does the Consumer Advocate have any evidence that either residential customers or business customers favor the position that the Consumer Advocate has taken in this docket?

A. I think that the evidence, you know, is that -- again, back to my previous statement -- people favor reliable electric supply, don't tolerate outages very well. And while businesses and residents may or may not support the project specifically, I think the CAC [community advisory committee] process did show a preference for 46kV projects in lieu of 138kV projects. So I believe the support is there.

Q. Didn't all three projects -- weren't all three projects unfavorably received by the CAC?

A. Yes, you know, it doesn't necessarily mean that there's not resistance or things like that. Again, going back to the relevant matter which is whether the project is needed, the project is needed. So support is what, you know, the project will provide benefits. And is there going to be resistance? That is, unfortunately, part of the process." (Kiser Tr. 285:8-286:19)

The Consumer Advocate is required under state law to consider the benefits of renewable energy. The Consumer Advocate deferred to the utility on this issue, even though over 99.7% of the HECO's owned and operated generators are oil-fired. (Less than 0.3% of the MWh of electricity produced by HECO and its subsidiaries is generated from renewable energy resources).

The only requirement of the Consumer Advocate is §269-54(c)
"The consumer advocate **shall** consider the long-term benefits of

renewable resources in the consumer advocate's role as consumer advocate"

[See: §269-54 General powers; duties. (a) The consumer advocate **shall** have the authority expressly conferred by or reasonably implied from the provisions of this part. (b) The consumer advocate **may** ... (c) The consumer advocate **shall** consider the long-term benefits of renewable resources in the consumer advocate's role as consumer advocate. (d) Whenever ... the consumer advocate **may** institute proceedings ... The consumer advocate **may** appeal any final decision and order ... (e) The consumer advocate **may** ...]

"Q. How did you incorporate Hawaii Revised Statutes Section 269-54(c) in your analysis that says the consumer advocate shall consider the long-term benefits of renewable energy?

A. When I did this section of my testimony, as I stated in the testimony, I reviewed numerous documents, studies that were performed by others, looked at the information that the company had supplied regarding what they're doing on the demand side, management, [sic] the CHP and other programs that are being implemented or developed at this time. And it's my understanding that that would be performing that function on behalf of the Consumer Advocate.

Q. When you said numerous documents, in your testimony you cited a number of documents that were either HECO or HECO consultants; that's correct?

A. That's correct." (Kiser Tr. 276:19-277:10)

The only documents cited by the Consumer Advocate were written by HECO and their consultants. (CA-T-1).

The Consumer Advocate is required to evaluate renewable energy resources, as required by law (HRS **§269-54(c)**).

The Consumer Advocate faulted HECO for being so overly fixated on transmission

alternatives that they failed to review subtransmission alternatives. In reality, the Consumer Advocate was so overly fixated on transmission/subtransmission systems that they failed to follow state law mandating that they look at renewables:

From a transmission planner's point of view, one could conclude that there is a reasonable case to install 138 kV improvements given the Koolau/Pukele Overload Situation and the Pukele Substation Reliability Concern. (CA-T-1, p 79:13-16)

If planning included both transmission and subtransmission distribution systems simultaneously, I contend that the results of that planning process would be very similar to the project HECO is pursuing in this docket. This same argument can be extended to distribution planning and criteria, which, in turn, impact subtransmission projects and transmission projects. However, this proceeding did not include a review of the distribution systems. (CA-T-1, p 80:20 - 81:4)

HECO's planning process failed to incorporate a complete system planning approach. (CA-T-1, p 82:7)

The Consumer Advocate lacked understanding of existing renewable energy and distributed generation in East O`ahu and failed to understand the potential for increased amounts of renewable energy and distributed generation.

"Q. Does the Pukele service area have 65 megawatts of nameplate backup generation?

A. I do not know.

Q. Can the existing backup generators provide 20 percent or more of the Pukele service area peak load?

A. When you refer to backup generators, what specifically do you mean?" (Kiser Tr. 272:25-273:6)

"Q. What is the megawatts of combined heat and power systems that could be built now hooked up to the existing natural gas or

synthetic natural gas pipelines within the Pukele service area?

A. I did not study that." (Kiser Tr. 276:6-10)

"Q. Sea water air-conditioning can displace how many megawatts on Oahu?

A. I'm not certain.

Q. New solar water heaters could displace how much power on Oahu?

A. I'm not certain of that either.

Q. How much wind facility in megawatts could be placed on Oahu?

A. I'm not sure." (Kiser Tr. 275:11-19)

"Q. Did the Consumer Advocate conduct any independent studies on distributed generation, renewable energy, or combined heat and power for this project.

A. No." (Kiser Tr. 278:7-11)

HECO's Proposal - Summary

HECO's proposal is flimsy at best. Their justification is, again, self-serving, not reasonable and definitely not in the public interest. The commission must determine whether the proposal meets the requirements of General Order 7, paragraph 2.3.g.2, and also whether the proposal is constitutional. The latter requirement is where the legitimacy of HECO's proposal gets really dicey.

VI. The Hawai`i Constitutional Framework¹³

The Hawai`i Constitution, Article XI, section 1 (1978), relating to the CONSERVATION

¹³ These issues and the citations have been extensively covered by LOL-T-1, pages 21-22; LOL-Ref-3; and LOL's Opening Brief re PUC DN 03-0371 (Distributed Generation).

AND DEVELOPMENT OF RESOURCES, states in part:

For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State

The general rule is: If the words in a constitutional provision are clear and unambiguous, they are to be construed as they are written. In re Water Use Permit Applications, 94 Hawai'i 97, 131, 9 P.3d 409 (2000), citing State of Hawai'i, ex rel. Bronster v. Yoshina, 84 Hawai'i 179, 932 P.2d 316 (1997).

In this regard, the settled rule is that in the construction of a constitutional provision the words are presumed to be used in their natural sense unless the context furnishes some ground to control, qualify, or enlarge them. Pray v. Judicial Selection Comm'n, 75 Haw. 333, 342, 861 P.2d 723, 727(1993) (citation, internal quotation marks, brackets, and ellipses omitted).

As an agency of the State, the Public Utilities Commission is clearly directed to conserve and protect Hawaii's natural beauty and natural resources and to promote the development and utilization of these resources ... in furtherance of the self-sufficiency of the State. The constitutional directive approved by the people of Hawai'i in 1978 sets

the parameters: Conserving and protecting is first on the agenda, seconded by utilizing these resources in furtherance of the self-sufficiency of the State.

The Hawai'i Supreme Court has ruled on Article XI, Section 1 with regard to water issues, but not with regard to other resources: "We need not define the full extent of article XI, section 1's reference to "all public resources" at this juncture." In re Water Use Permit Applications, 94 Hawai'i 97, 131, 9 P.3d 409 (2000),

Hawai'i State Planning Act (Act 100, 1978). "Planning for the State's facility systems with regard to energy/utilities shall be directed towards the achievement of the following objectives: (1) Dependable, efficient, and economical statewide energy and communication systems capable of supporting the needs of the people. (2) Increased energy self-sufficiency."¹⁴ Department of Planning and Economic Development (DPED) Director Hideto Kono stated "The Hawaii State Plan, adopted by the Legislature in 1978, identifies the attainment of increased energy self-sufficiency as a major objective to be sought. The development and utilization of natural, indigenous, renewable energy resources abundant in Hawaii is necessary to the achievement of this objective."¹⁵ "As reported in the State Plan, a 1977 public opinion survey found that the people of Hawaii strongly favor development of indigenous energy resources."¹⁶

¹⁴ Act 100, Section 18. now codified as Chapter 226, HRS. See also LOL's Opening Brief re PUC DN 03-0371 (Distributed Generation).

¹⁵ Testimony on April 16, 1979, before the Senate Committee on Economic Development, re SCR 385

¹⁶ Energy Self-Sufficiency for the City and County of Honolulu. May 1979. LRB Library HD 9502 H53 H34 1979

The **Hawai'i Constitutional Convention of 1978** proposed amending the Hawai'i State Constitution re Energy Policy: "Your Committee on Environment, Agriculture, Conservation and Land ... begs leave to report as follows ... The consensus of your Committee with regard to self-sufficiency was to constitutionally recognize the growing concern and awareness of Hawaii as being overly dependent on outside sources for, among other resources, food and energy. Your Committee spent much time considering the need for a separate section on an energy policy for the State. However, it was concluded that the promotion of energy conservation, the development of clean, renewable sources of energy, and the achievement of increased energy self-sufficiency would be adequately covered by the provisions of this section."¹⁷

The Constitutional Convention's Submission & Information Committee explained the impact of the amendment to the voters: Amendment 23: "Environment and Resource Protection. If approved, the State and the counties would be required to conserve and protect the natural beauty and resources of Hawaii and to promote the use and development of these resources in a manner consistent with conserving the resources while promoting self-sufficiency in Hawaii. Each person is affirmed to have the right to a clean and healthy environment with the State holding all public natural resources in trust for the benefit of the people. Each person would have the right to sue to enforce his right to a clean and healthy environment as defined by law."¹⁸

¹⁷ Constitutional Convention of 1978: LRB Ref. KFH 401 1978 A225 v1 c1; See also: Constitutional Amendment Information Sheets. LRB

¹⁸ Constitutional Convention's Submission & Information Committee, 1978; Honolulu Sunday Star-Bulletin & Advertiser, pages A26 & A27

The LRB informed the 1979 State Legislature about the modification: Energy: "... The provision regarding 'self-sufficiency' was included to recognize the growing concern and awareness of Hawaii as being overly dependent on outside sources for, among other reasons, food and energy. ... Legislation. No legislation appears necessary at this time."¹⁹ LRB noted that the energy provisions was different from the agricultural self-sufficiency clause: "Agriculture: ... Legislation necessary to provide standards and criteria must be developed to accomplish goals of conservation and protection of agricultural lands, promotion of diversified agriculture, increased agricultural self-sufficiency, and assurance of the availability of agriculturally suitable lands."²⁰

The State Constitution now reads: "the State ... shall conserve and protect ... natural resources, including ... energy sources, and shall promote the development and utilization of these resources ... in furtherance of the self-sufficiency of the State."²¹

The Hawai'i Constitution requires energy self-sufficiency but does not mention cost. It turns out, as demonstrated in the next section, that when full accounting is used, renewable energy is cheaper than continued reliance on fossil fuels.

But even if there were not true, the commission has stated that renewable energy can be given a premium.

¹⁹ Constitutional Amendment Information Sheets (c. December 1978). page 110

²⁰ Ibid. pages 111-12

²¹ Hawaii State Constitution, Article XI, Section 1, as amended, 1978

The commission ruled that the Public Utility Regulatory Policies Act of 1978 (PURPA) is relevant for Hawai'i when consistent with state laws. The Commission adopted Hawai'i-PURPA in 1981: "the PUC is mandated to adopt rules and regulations pertaining to the purchase and/or sale of energy between cogenerators or small power producers ... the proposed rules herein will be consistent with the objectives of PURPA, the State Plan and Act 102, Session Laws of Hawaii, 1977"²² The Commission noted in 1983: "Where FERC has made an interpretation of its rules ... the adoption of that interpretation by the Commission, when consistent with state policy, is reasonable since the provisions being interpreted are the same."²³

"In our reviews under the present procedure, we have interpreted our rules and statutory powers in a manner that has favored the inclusion of environmental and capacity benefits in avoided costs, when warranted by the facts of individual dockets." (p 2) "in Decision and Order No. 11333, issued in Docket No. 6956 (October 28, 1991), we held that under HRS section 269-27.2, we may encourage the development of alternative energy sources of energy by adding a premium to avoided costs, if justified by the circumstances of the particular contract." (pp 2-3) (Hawai'i Public Utilities Commission. Resolution of Avoided Cost Issues. Status Report on Commission Docket No. 7310. Subsequent to the Adoption of Senate Concurrent Resolution No. 179, S.D. 1 H.D. 1 By the Twentieth Legislature. December 2000)

²² PUC Docket No. 4205. Order No. 6531. Notice of Rulemaking and Order. January 23, 1981

²³ Wind Power Pacific Investors-III and Waikoloa Water Co., Inc. Docket No. 4779. Decision and Order No. 7578. June 20, 1983, pages 12-13

VII. Indigenous Energy Resource Options²⁴

Hawai`i is perfectly poised with almost constant sunshine, prevalent trade winds & a deep, cold ocean, to become a model of energy self-sufficiency. Hawai`i has an abundant and varied portfolio of renewable energy resources. This includes solar, wind, hydroelectric, biomass, wave, and ocean thermal conversion. Hawai`i also has great opportunities to decrease the need for air conditioning through the use of ocean temperature differentials (SWAC). Finally, Hawai`i has an installed and developed capacity for cogeneration to be used during the transition from the fossil fuel era to a self-sufficient energy future. **(LOL-T-1; pages 22-25)**

O`ahu can meet 3-5 times its electrical needs through existing renewable energy technology.

Solar: According to researchers at the National Renewable Energy Laboratory (NREL) in Golden, Colo., photovoltaic units -- or solar panels -- spanning only 10,000 square miles could provide all the electricity the United States needs based on the current solar energy technology of 10-percent system efficiency. With next-generation 15-percent efficiency models, that land space would be decreased by 30 percent. An area roughly equivalent to 1 percent of the continental United States could supply enough electricity to charge the world. "No study has been conducted as to the PV MW potential of rooftops in the Pukele Service Area." **(HECO Response to LOL-HECO-IR-35)**

²⁴ These options have been detailed in LOL's DG and EOTP filings.

HECO notes that "200 MW would require 1,200 to 1,400 acres [of photovoltaic panels], which ... is also equivalent to approximately 1.3% to 1.5% of land in the Koolau/Pukele service area that is a part of the State Urban District" **(HECO Response to LOL-HECO-IR-80(b))**

Wind: The Pacific Northwest Laboratory (PNL) of the Department of Energy (DOE) has published estimates of the wind power resource available in the United States. ... The total amount of US land with "excellent" wind characteristics, with moderate exclusions, is just over one percent of total land area. This would support approximately 3,500 gigawatts (GW) of wind capacity ... The rated (peak) wind capacity of 3,500 GW is about five times the 713 GW of 1999 installed conventional utility and non-utility generating capacity in the United States.

Oahu has strong wind potential in several on-shore sites and some off-shore sites. Micro-wind facilities (0-2 kW) offers an exciting new approach.

Wave Power: Tidal energy offers a great opportunity. Since water is 1000 times more dense than wind, the size of the blade can be much smaller. It makes sense to be open to wave power facilities. The pilot project in state waters off the coast of the Kaneohe Marine Corps Base Hawai'i hold much promise. DBEDT found that "Hawaii may be an ideal site for early commercial development of WECS owing to the following reasons ... Hawai'i has one of the better and more consistent wave regimes."

Oahu can produce most of its electrical needs through off-shore tidal (buoy) devices.

Sea Water Air Conditioning (SWAC): Market Street Energy Company, based in St. Paul, Minnesota, plans to build two Sea Water Air Conditioning (SWAC) systems (2007, 2009) in Honolulu. Each will displace approximately 17 MW of grid power. The company believes that five systems would be economical, offsetting a total of 68 MW of electricity. The fixed costs would account for 85 percent of the lifecycle costs. Perhaps half of the capital construction costs would be spent on outside equipment and half would be spent in the local market. Waikiki seawater air conditioning cold water circulation system could reduce Waikiki's entire energy economy by 40%.

Combined Heat and Power (Cogeneration): Urban Honolulu has a gas infrastructure and has sufficient additional capacity already installed to handle a great deal of new distributed generation. There is a gas grid in urban Honolulu. A Synthetic Natural Gas Pipeline exists from Waikiki to Hawai'i Kai. The gas line has enough capacity for 150 MW of power in urban and east Honolulu. The plant producing Synthetic Natural Gas is at 57 percent capacity. Since cogeneration utilizes the heat produced by burning gas, facilities with cogeneration do not need to purchase electricity to generate heat. Thus One MW of cogeneration sheds two MW from the generation of electricity. There is no transmission losses with cogeneration.

Economics of Indigenous Energy Resources

Traditional engineering cost models do not work well in era with very different resource options. Engineering cost models leave out important cost considerations with the result that renewable energy options appear to be more costly than they really are. Dr.

Shimon Awerbuch's (LOL-T-1, pages 10-12; LOL-EX-10) work was included in LOL's Testimony and went unchallenged.

Everyone seems quite content to leave the seemingly arcane procedures for estimating levelized electricity (busbar) costs to the green-visor types with little meaningful outside review.

This means that some of the firm's most important decisions are made on the basis of black-box output that few truly understand.

Engineering models do not account for financial risk. Loosely defined, financial risk is the variability of annual costs. Under an engineering approach, a *risky* annual cost stream has the same present value as an equivalent but *safe* cost stream. This violates fundamental finance theory. Dollar for dollar, a risky cost stream, such as future outlays for fuel, has a *higher* present value since it is less desirable than a safe cost stream. This intuition - that a risky cost stream is less desirable - seems to be widely understood. ...

The busbar costs exclude overhead and indirect costs such as fuel purchasing, engineering staff time, or Clean Air Act compliance costs. Ignoring these costs in the resource evaluation probably worked reasonably well when technology alternatives were fairly homogeneous - i.e., when the alternatives consisted of technologically- equivalent fossil-fired options which required (or "consumed") more or less the same types and amount of over- head resources.

Today's technology choices, however, are considerably more heterogeneous, consisting of a variety of technological and institutional alternatives with vastly different cost characteristics. The overhead requirements for this diverse range of resource options vary considerably. For example: some passive, renewable alternatives, such as remote PV sites, operate reliably

and require little support from the corporate infra-structure thus consuming very little over-head or indirect costs as compared to traditional central station technologies.

Busbar cost comparisons thus tend to overstate the cost of renewable options relative to traditional fossil alternatives. ... (LOL-EX-10)

Another shortcoming in many economic analyses is that they do not consider the public interest benefits from increasing self-reliance. A microeconomic analysis: Importing Energy, Exporting Jobs, from Dollars from Sense: The Economic Benefits of Renewable Energy, was published by the National Renewable Energy Labs (NREL), United States Department of Energy (1997). (LOL-EX-6) The Report stated in part:

Energy purchases represent a significant cost to society -- nationally and locally -- and it is important to spend energy dollars in a way that strengthens the economy rather than depleting it.

In many cases, energy dollars leave the community, going to regional utilities or suppliers of oil or natural gas. Once those dollars have been spent on importing energy into the community or state, they are not available to foster additional economic activity. Because every dollar spent on imports is a dollar lost from the local economy, these energy imports represent a substantial loss to local companies in terms of income and jobs. The challenge is to meet our insatiable appetite for energy while supporting local economic development.

A growing number of state and local governments are investigating ways to keep their energy dollars at home -- for many, the answer lies in renewable energy resources.

How Renewable Energy Investments Help the Economy. There are two main reasons why renewable energy technologies offer an economic advantage: (1) they are labor-intensive, so they generally create more jobs per dollar invested than conventional electricity generation technologies, and (2) they use primarily

indigenous resources, so most of the energy dollars can be kept at home. ...

The multiplier effect is sometimes called the ripple effect, because a single expenditure in an economy can have repercussions throughout the entire economy, much like ripples spreading across a pond. The multiplier is a measure of how much additional economic activity is generated from an initial expenditure.

In recent years there has been a move towards developing sound economic models to determine what the true costs of renewables are. Even in states with very low energy costs, renewable energy projects adds significant economic benefits.

HECO consultant Black & Veatch wrote a microeconomic analysis titled Assessment of the Potential Impacts of a Renewable Portfolio Standard in Pennsylvania. (LOL-EX-2)

Black & Veatch assumed that starting in 2006, renewables within the energy portfolio would increase by 1 percent per year, and would represent 10 percent of the portfolio from 2015 through 2025. They analyzed two possible scenarios: Business As Usual (BAU) and RPS Portfolio. The RPS Portfolio would raise average kWh costs by just 0.036 cents. Since the average residential household uses 800 kWh/month, the average residential user would see their bill rise by \$3.48 per year. For the economy as a whole, there would be 85,000 additional job years, and gross state output would increase by \$10.1 billion increase. (**LOL-T-1: pages 16-17**)

The University of Nevada Las Vegas (UNLV) conducted a study on Nevada's RPS. Their report The Potential Economic Impact of Nevada's Renewable Energy Resources. (LOL-EX-3; **LOL-T-1; pages 17-18**)

Another major economic study came out of the Midwest in 2001. Job Jolt: The Economic Impact of Repowering the Midwest was conducted by the University of Illinois's Regional Economic Applications Laboratory (REAL) and was written by the Environmental Law & Policy Center. REAL's study shows that implementing the renewable energy component of the Clean Energy Development Plan in *Repowering the Midwest* will generate 25,000 - 41,000 jobs by 2020. These jobs will generate local income of \$700 million - \$1.3 billion in 2010, rising to \$1.7 billion - \$2.3 billion in 2020. Implementation also will increase annual Midwest economic output by \$2.3 billion \$4.0 billion in 2010, and by \$5.5 billion to \$7.3 billion in 2020 ... Renewable energy will create new jobs -- both direct and indirect -- in all major economic sectors. (LOL-EX-1; **LOL-T-1; pages 18-19**; See also LOL-EX-4 through 8; **LOL-T-1; pages 13-20**)

Environment of Indigenous Energy Resources

Electric power plants emit more of the pollution that causes soot/smog than any other industry. The top Hawai'i polluter is HECO's Kahe Generation Station. Each year, smog and soot cause millions of asthma attacks, bronchitis, heart disease and thousands of premature deaths. Children, senior citizens and people with asthma are most at risk.

The fossil fuel industry is responsible for the plurality of the world's pollution, including ocean-based and land-based oil spills, acid rain, and global warming gases. These include Hawai'i-based impacts, such as the May 14, 1996 Chevron pipeline failure -- an

oil sheen which covered 90,000,000 square feet of Pearl Harbor including 77,965 linear feet of intertidal habitat. (LOL-T-1)

Pentagon planners have determined that global warming could be the "mother of all national security issues", with more deadly consequences that all previous wars combined. Fortune Magazine²⁵ wrote:

Global warming may be bad news for future generations, but let's face it, most of us spend as little time worrying about it as we did about al Qaeda before 9/11. Like the terrorists, though, the seemingly remote climate risk may hit home sooner and harder than we ever imagined. In fact, the prospect has become so real that the Pentagon's strategic planners are grappling with it. The threat that has riveted their attention is this: Global warming, rather than causing gradual, centuries-spanning change, may be pushing the climate to a tipping point. Growing evidence suggests the ocean-atmosphere system that controls the world's climate can lurch from one state to another in less than a decade -- like a canoe that's gradually tilted until suddenly it flips over. Scientists don't know how close the system is to a critical threshold. But abrupt climate change may well occur in the not-too-distant future. If it does, the need to rapidly adapt may overwhelm many societies -- thereby upsetting the geopolitical balance of power. Though triggered by warming, such change would probably cause cooling in the Northern Hemisphere, leading to longer, harsher winters in much of the U.S. and Europe. Worse, it would cause massive droughts, turning farmland to dust bowls and forests to ashes. Picture last fall's California wildfires as a regular thing. Or imagine similar disasters destabilizing nuclear powers such as Pakistan or Russia; it's easy to see why the Pentagon has become interested in abrupt climate change."

²⁵ Fortune Magazine: LOL-EX-13; LOL-T-1, pages 6-7; See also Chemical and Engineering News: LOL-EX-14

VIII. CONCLUSION

Governor Lingle, in a recent press conference, introduced legislation that she called a bold step that needs the political will to be realized.. She said that a large leap is needed now to enhance both the economy and the environment and to end our decades long over-dependence on oil.

Analysts have forecast the median price of oil will be more than \$60 a barrel this year and they don't see it dropping below \$60 a barrel anytime in the future.

HECO has admitted that they did not include the price of oil in their analysis. ("the price of oil was not considered in the cost analysis" (HECO Response to LOL-HECO-IR-7e)).

The time has come for the state of Hawai'i to get into the drivers seat and steer Hawai'i's Energy Policy down the path outlined in the Hawai'i State Constitution and the Hawai'i State Plan.

Security demands that we become as energy self-sufficient as possible as soon as possible, while also being energy conscious and efficient.

Hawai'i is perfectly poised to be a model for energy self-sufficiency by increasing our use of indigenous fuels and decreasing our use of imported fossil fuels. This will keep

our money circulating in our economy, while providing high-tech jobs for our people.

Hawai'i is at a crossroad.

There are a multitude of opportunities for us if we diversify our economy by focusing on the multi-faceted energy sector.

Which path will we follow?

- Will we go down the business-as-usual, wait-and-see, last-to-innovate path of central station, fossil fuel powered electric generators?
- Will we continue to build public infrastructure in Leeward O`ahu that benefits everyone, but that no one wants in their own backyards?
- Will we continue to despoil our environment by stringing up miles and miles of unsightly power lines?

Hawai'i is at one of the most exciting crossroads in our history.

You, Commissioners have the chance to chart the course for an energy future that will affect the lives of your children, their children, and generations yet to be born. You can decide that Hawai'i is a special place and appreciate the abundance that surrounds us -

almost constant sunshine, prevalent trade winds, and a deep cold ocean that offer a diverse array of energy options - and decide that Hawai'i will follow a different path.

You can be the Commissioners who challenged the status quo because you believe that Hawai'i can become energy self-sufficient and you are going to do everything in your power to make it happen.

You can choose the path to energy self-sufficiency.

The path that fosters energy security is the path on which we build small, locally-sited distributed generation units networked together to keep O'ahu running in case of emergency.

A path that fosters a unified community who come together to help each other in those rare times of need.

We can become high-technology pioneers, showcasing Hawai'i's energy self sufficiency, a high technology industry that respects the environment and employs more people than traditional energy generation, and exports technology and energy self-sufficiency models throughout the Pacific and the world.

The possibilities for our future are limitless if we remove our blinders and see that for energy security, we need a network of generators providing the most essential engine

for our business sector.

It is no secret which road HECO is on: a planned new centralized coal-fired power plant for Campbell Industrial Park, new transmission lines, and new subtransmission lines destroying view-planes and causing environmental destruction.

Putting almost 80% our energy options in the oil barrel is foolish and risky, not to mention the damage caused to our people's health and our precious environment by the burning of fossil fuels.

Why does HECO want all these manini projects strung together to make one big project? The original intent may have been to bury the costs (HECO RT-1 p 19:2-4; HECO RT-12, pages 1-4) from their defeat in the Wa`ahila Ridge case. That part of the case was postponed until the next rate case.

So now we now have is all these little projects that HECO has been unable to present a compelling argument to justify the reasonableness of, the need for, or the public benefit to be gained from this cobbled-together proposal.

Beyond the usual scare tactics - civil defense (who they haven't spoken with), outages (the community stated that occasional outages were acceptable) (Kiser Tr. 285:8-286:19) HECO brought nothing to the table to support their position.

The Consumer Advocate, like HECO, contributed nothing to move Hawai'i toward its Constitutional mandate of energy self-sufficiency. It was clear from the Consumer Advocate's testimony that they have no intention of implementing HRS **§269-54(c)** , which states that they should consider the benefits of renewable energy, since their witness testified that he did not look at or consider the benefits of renewable energy in analyzing this project. Furthermore, he testified that the only studies he reviewed were studies done by HECO or by HECO consultants. The Consumer Advocate's analysis was simply echoing HECO and, therefore, not very helpful in providing the commission with useful information.

With the sharp rise in the price of oil, and with the growing recognition that demand (US, China, India) is outstripping supply, that oil production has or is close to peaking, and with the abundance and variety of renewable energy resources available in Hawai'i, the time to move towards Constitutionally-mandated energy self-sufficiency is now.

Certificate of Service

I hereby certify that I have this date served a copy of the foregoing Information Requests by Life of the Land, Docket Number 03-417, upon the following parties. The original and 8 copies to the PUC. Two copies to the Consumer Advocate. Three copies to HECO. In addition, electronic copies have been sent to all parties.

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